



# Temiz Giysi Kampanyası

Adil ve sürdürülebilir bir tekstil sektörü için



# Use of Potassium Permanganate by Brands and Its Effects on the Environment



# Team

---

## Researcher, Author

Damla Uak

## Editing

Mert Tokur

## Proofreading

Nicolle Beeby

## Design

Ceren Bettemir

## General Coordination

Abdulhalim Demir

## Contact

info@temizgiysi.org

## Publication Date:

February, 2024



This project is funded by  
the European Union.

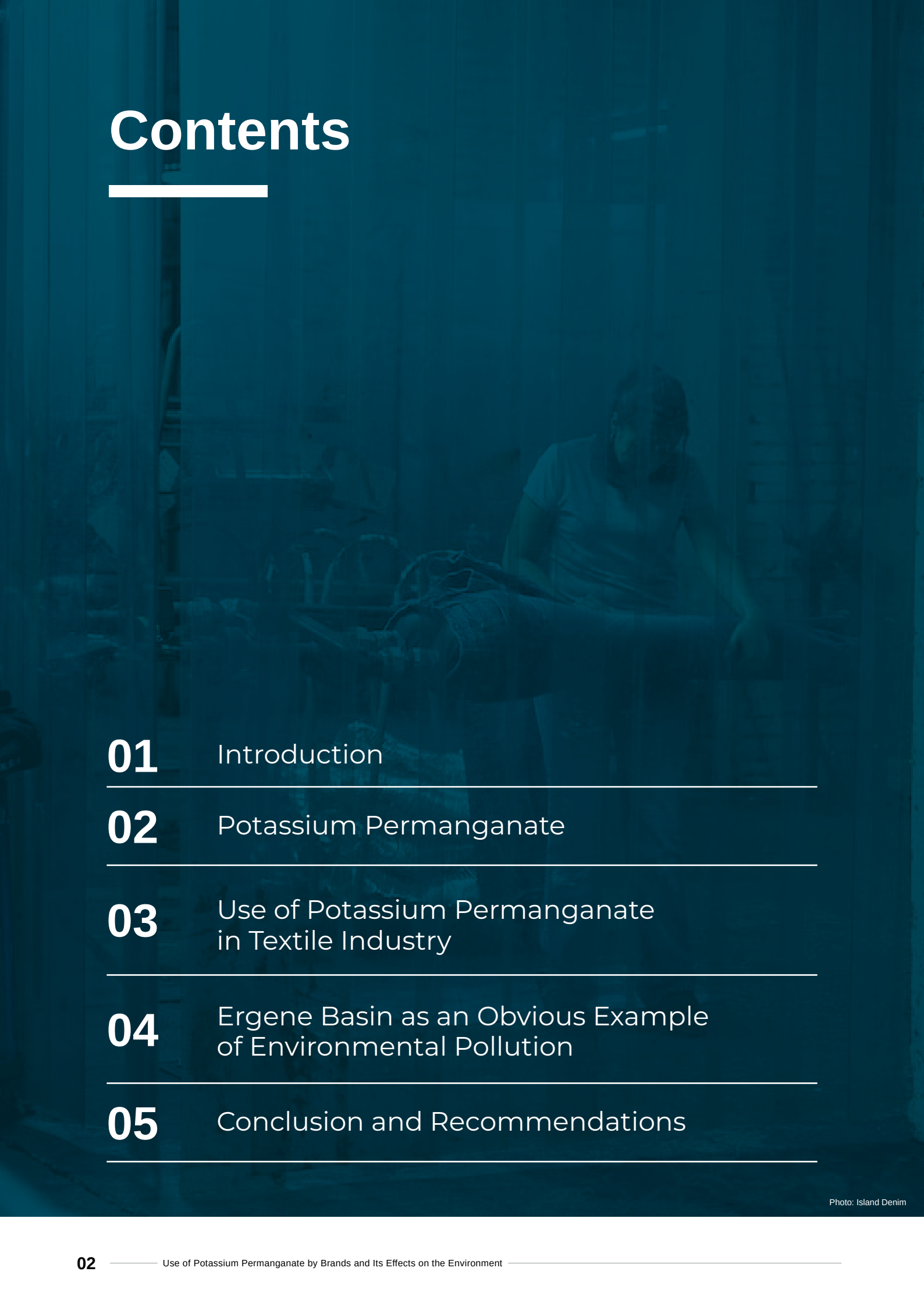
Bu proje Avrupa Birlięi tarafından  
finanse edilmektedir.



This publication has been prepared with the support of the European Union within the framework of the Support to Rights Program. The content is solely the responsibility of the Clean Clothes Campaign and does not reflect the views of the European Union and/or the Support to Rights Program.

# Contents

---

- 
- 01** Introduction
  - 02** Potassium Permanganate
  - 03** Use of Potassium Permanganate in Textile Industry
  - 04** Ergene Basin as an Obvious Example of Environmental Pollution
  - 05** Conclusion and Recommendations

# 01

## Introduction

---

This report focuses on the harm to human and environmental health of **potassium permanganate (PP)**<sup>1</sup>, which is used to bleach jeans in the textile industry, and as a result, examines the declarations and commitments regarding the use of PP by brands that produce and sell bleached jeans in Turkey.

The purpose of the report is to determine the policies regarding chemical use and sustainability of the brands, and especially the use of PP, with reference to the environmental destruction caused by the use of PP and the damage to human health, to bring together the data obtained on the extent to which these policies are adhered to, and to identify the negative effects caused by PP use based on this data.

Photo: ntv.com.tr

<sup>1</sup> It will be used as PP in the rest of the study.

A study on the harm of PP to human and environmental health faces two main challenges that are structurally insurmountable: The first challenge is occupational diseases transmitted through inhalation and may occur in a short or long time depending on factors such as the concentration of the chemical substance and the duration of the exposure. Therefore, while providing medical information about PP's detrimental effects on workers' health is possible, it is challenging to access clear information regarding its long-term effects. Although it is foreseeable that there is a lack of medical studies related to PP, it shows that there would be many negative effects that have not yet been proven. The second challenge lies in the difficulty of distinguishing the environmental damage caused specifically by textiles in regions where textile production occurs from the negative impacts of other industries - making evaluation almost impossible.

Another issue we have touched upon without forgetting these difficulties is the extent of the pollution in the Ergene basin and its surroundings, the problems created by this pollution, and the textile industry's share in this pollution. The purpose of covering this region is to draw attention to the situation of the Ergene River, which began to be called a "dead river" with the concentration of industry in that region and to obtain information and open a discussion regarding how the chemicals used by the textile industry, which is one of the main factors in the formation of this situation, are effectively and adequately disposed of with a waste treatment method.

## METHOD

This report has been prepared with the data obtained from desk research. The harms of PP to human and environmental health had been investigated in accordance with the purposes of the research, the chemical use and sustainability policies of the brands had been examined, and it had been given place to the pollution in the Ergene basin, the policies maintained to deal with this pollution and the relationship of the textile industry with the pollution in the basin. It had been investigated whether the brands had a specific commitment regarding the use of PP, and 44 brands making production in Turkey, including three brand groups, had been contacted. The "PP Spray Report"<sup>2</sup> had also been sent to the brands, and the following questions were addressed to their activities in Turkey:

1. *Where they make production,*
2. *Their use of PP,*
3. *Their policies regarding the use of PP,*
4. *Their methods of controlling and auditing suppliers*

The responses had been received from three of the 44 brands from whom we stated we were awaiting a response within three weeks. Trakya Development Agency had been contacted for information about the Ergene basin's textile sector. The study had been started in October 2023, and the completion of the report took a period of two months.

<sup>2</sup> Temiz Giysi Kampanyası Derneği. *Potassium Permanganate Spray Report*. <https://www.temizgiysi.org/wp-content/uploads/2019/07/Clean-Clothes-Campaign-Turkey-Potassium-Permanganate-Spray-Report.pdf> Access Date: 20.10.2023.

# 02 Potassium Permanganate

PP is a dark purple-coloured, odourless, solid chemical with a sand-like structure. PP, which is classified as a hazardous substance by the European Chemicals Agency (ECHA), is on the hazardous chemicals list of the United States Environmental Protection Agency (EPA), which is responsible for regulating the environmental effects of chemicals, and the Department of Transportation (DOT), which is responsible for the safe transportation of chemicals. This substance is used to purify air and water and is a disinfectant and deodoriser in solutions. In this study, it will be focused on its use as a bleaching agent for jeans.

## HAZARDOUS CHEMICAL

**Using Aim:**  
Bleaching agent  
for jeans



## 2.1. Widespread use of PP and bleaching methods with PP

The sandblasting technique used to bleach jeans had spread rapidly in Turkey because the jeans, bleached to appear worn in certain areas, had become fashionable. The sand in the tank was sprayed onto the jeans using air at 10 bar pressure produced by the compressor employing a method which became increasingly common in the late 1990s. The air, which stayed suspended in the air, was being inhaled by the worker, and it was causing the worker to contract a silicosis disease at a rate that varied depending on factors such as the amount of dust exposed, its quality, and duration of exposure during this process. The occurrence of silicosis among textile workers as an occupational disease associated with miners and being a reason for many loss of lives resulted in the workers coming together under the name of the Jeans Sandblasting Workers Solidarity Committee to ban jeans sandblasting. Following the developments encountered in 2009, silicosis disease was classified

within the public hygiene group by the decision of the Council of Ministers in 2010. Additionally, all textile workers working without registration and contracting silicosis disease were granted the right to retire in 2011.

The lack of adaptation to changes in the demand and supply of distressed jeans, despite the ban on jeans sandblasting, has led to the exploration of alternative methods for bleaching jeans. At this point, PP, which is easy to apply and shows its effect quickly, had come to the fore and became widespread as a bleaching agent in the industry. This substance is oxidising and has an effect on the colour of most organic substances, including skin.

In this method, where PP weight is determined according to the intensity of the process on the jeans, it is applied to jeans by diluting with water with the help of spraying or a brush.

Following the developments encountered in 2009, silicosis disease was classified within the public hygiene group by the decision of the Council of Ministers in 2010.

Despite the ban on jeans sandblasting, has led to the exploration of alternative methods for bleaching jeans. At this point PP replaced sandblasting's place



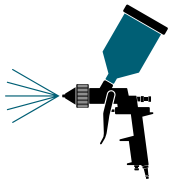
### 'Kot kuşlama yasaklansın'

DİYARBAKIR'DAN gelip, Ankara Meslek Hastahkları Hastanesi'nde tedavi gören 39 silikozis hastası işçiyi ziyaret eden Ankara Emek ve Meslek Örgütleri Platformu üyeleri, "merdiven altı" olarak tabir edilen kot kuşlama atölyelerinin yasaklanmasını istedi.

tas işlerinde çalışan işçilerin devamlı olarak silikozis maruz kaldığına dikkat çekti. Yaklaşık 5-10 bin tekstil işçisinin kot kuşlama işinde çalıştığı tahmin ettiklerini vurgulayan Pektaş, "Bugüne kadar 500 işçiyse silikozis tanısı koyulmuştur" dedi.



Photolar: bianet.org, emo.org.tr, evrensel.net



### SPRAYING

The mixture prepared in the spraying method is sprayed on the jeans by putting it into the spray gun. After this process, a red image appears in the areas where the spraying was done. Afterwards, the jeans are washed with sulphite to neutralise PP on them, and the desired white appearance is obtained.

### BRUSH

When working with a brush, PP is melted and applied to the jeans, and then, it is washed with the sulphite as in the spraying method. The danger that this process creates varies depending on how adequately and effectively occupational health and safety practices are implemented.

The limits determined regarding the exposure of a worker to PP are as follows:

01

The exposure limit by inhalation is  $5 \text{ mg/m}^3$  and should never be exceeded.<sup>4</sup>

02

The exposure limit with the amount of respiratory during a 10-hour work period is  $1 \text{ mg/m}^3$  on average, and this limit should not be exceeded during a 15-minute work period.<sup>5</sup>

03

The exposure limit with the amount of respiratory during an 8-hour work period is  $0.03 \text{ mg/m}^3$ .<sup>6</sup>



Photo: Raja Pp Spray

<sup>3</sup> New Jersey Department of Health and Senior Services. *Hazardous Substance Fact Sheet*, <https://nj.gov/health/eoh/rtkweb/documents/fs/1578.pdf> Access Date: 11.11.2023.

<sup>4</sup> Occupational Safety and Health Administration (OSHA)

<sup>5</sup> National Institute for Occupational Safety and Health (NIOSH)

<sup>6</sup> American Conference of Governmental Industrial Hygienists (ACGIH)



## 2.2. Effects of Potassium Permanganate on Human Health



Harmful to fertility

ECHA states that “this substance causes severe skin burns and leads to serious eye damage, it is suspected of damaging fertility or the unborn child, and it will be able to cause damage to organs as a result of prolonged or repeated exposure”.<sup>7</sup>

The worker is exposed to this chemical through skin and eyes, and breathing in both methods where PP is used for bleaching. While severe irritation and burning are seen on the skin exposed to the substance, contact with the solution diluted with water also causes hardening and spots on the skin. It also causes dark brown lesions where it comes into contact with the eyes, and a colour change in the cornea and blurs in the vision occur in cases where the contact time is prolonged. Its inhalation creates problems such as irritation in the respiratory passages, respiratory passage oedema, chest tightness, cough, and lung inflammation. Being exposed to PP in the long term can also affect the liver and kidneys.



Serious eye damage

Studies are needed to determine whether PP causes cancer by leading to genetic changes. Although there was no medical study on this subject in Turkey, a cross-sectional study had been conducted. A study was conducted on a total of 62 men between the ages of 18 and 50 who did not smoke or use drugs and who did not have chronic diseases or infections. The workers were divided into two groups: 32 workers who carried out jeans bleaching with PP were selected for one group, and 30 workers who were not exposed to the chemicals were selected for the other group. The study was conducted with results confirming that there was a significant relationship between the toxic effect of PP and cancer.<sup>8</sup>

Comparison of the study and control groups in terms of PP genotoxic effect indicators <sup>8</sup>		
	STUDY GROUP (32 Male Worker)	CONTROL GRUBU (30 Male Worker)
Comparison Groups	PP inhaling group during denim bleaching process	Working in the same factory and not inhaling chemicals
Age	31.5	30.5
Micronucleus	30.0	17.8
Nuclear Bud	19.3	10.2
Nucleoplasmic Bridge	3.9	2.9.



Skin burn

So far, we have discussed the health problems that workers who are exposed to PP will encounter. Apart from this, we can also say that the effects of PP on the environment continue to harm human health indirectly, similar to other chemicals.

<sup>7</sup> European Chemicals Agency. Substance Infocard- Potassium Permanganate, <https://echa.europa.eu/substance-information/-/substanceinfo/100.028.874> Access Date: 08.11.2023.

<sup>8</sup> Gencer, G. Potasyum Permanganat Maruziyetinin Genotoksik Etkisinin Mikronükleus Tekniği ile Değerlendirilmesi. (Doktora Tezi). Cumhuriyet Üniversitesi, Sağlık Bilimleri Enstitüsü, Sivas, 2017.

## 2.3. Effects of Potassium Permanganate on Environmental Health

According to ECHA's statement, PP harms aquatic life and human health, being labelled as "very toxic" for water ecosystems.<sup>9</sup> In fact, Chemos, a chemical products supplier, suggests that PP should be kept away from sewers, surface and groundwater and that the competent authorities should be notified immediately in case it mixes with a waterway or sewer.<sup>10</sup> In this respect, purification of wastewater is of great importance in a sector where PP is used. On the other hand, assessing wastewater treatment as a cost element and not making the necessary inspections or being made incompletely makes it impossible to eliminate the negative effects of the organic pollutants in the wastewater. In addition to this, the rapid development of industries and the increase in population cause wastewater production that exceeds the amount that nature will be able to absorb. For example, an estimated 500 litres of water is used to bleach 100 kg of material with PP.

This mixture is washed in 15 to 30 minutes at the temperature of 40 to 60 degrees.<sup>11</sup> Even in this example, while around 500 litres of wastewater come into existence, more than five tons of PP are used every day worldwide.<sup>12</sup> In cases where the wastewater discharge is not done properly, the water resources used both for drinking water and for agricultural activities are polluted, negatively affecting human health, and harm life in the water. For example, manganese, a heavy metal present in PP, cannot biologically decompose. This element poisons aquatic life by damaging the DNA of water creatures. Moreover, although it had been thought that PP would cause less harm to the environment because it is an oxidising substance<sup>13</sup>, but not chlorinated, this oxidising chemical has the ability to aggravate the fire.

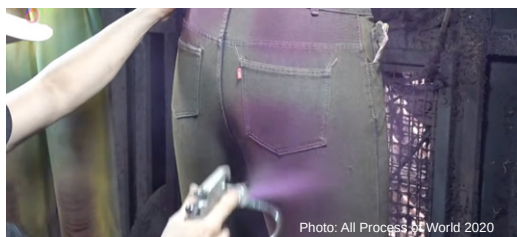


Photo: All Process World 2020



Photo: sputniknews.com

<sup>9</sup> European Chemicals Agency. Substance Infocard: Potassium Permanganate, <https://echa.europa.eu/substance-information/-/substanceinfo/100.028.874> Access Date: 08.11.2023.

<sup>10</sup> Chemos. Safety Data Sheet: Potassium Permanganate, [https://www.chemos.de/import/data/msds/GB\\_en/7722-64-7-A0014217-GB-en.pdf](https://www.chemos.de/import/data/msds/GB_en/7722-64-7-A0014217-GB-en.pdf) Access Date: 08.11.2023.

<sup>11</sup> Amutha, K. "Environmental Impacts of Denim." Sustainability in Denim. Muthu (ed.), S.S., Woodhead Publishing, 2017, 27-48, s. 37.

<sup>12</sup> Choudhury, A.K.R. "Environmental Impacts of Denim Washing." Sustainability in Denim. Ed. Muthu, S.S., Woodhead Publishing, 2017, 49-81, s. 58.

<sup>13</sup> Samanta, K.K. & Basak, Santanu & Chattopadhyay, Sajal. "Environmentally Friendly Denim Processing Using Water-Free Technologies." Sustainability in Denim. Muthu (ed.), S.S., Woodhead Publishing, 2017, 319-348, s. 330.

Bleach  
100kg  
material  
with PP

+100 kg Material  
+ Water  
= 500 litres  
+ Detergent  
= %1  
(according to  
the weight of  
the material)

↓  
500lt  
waste  
water

More than  
**five tons of  
PP** are used  
every day  
worldwide



# 03 Use of Potassium Permanganate in Textile Industry

---

The brands whose policies we examined regarding the use of PP, which is harmful to human and environmental health, are as follows:

---

Ben Sherman, Benetton, Clarks, Colin's, Collezione, Daniel Hechter, Debenhams, DeFacto, Diesel, Ellos, Esprit, Gap Inc. (Banana Republic, Gap, Old Navy, Athleta), Guess, H&M, Hugo Boss, Inditex (Zara, Pull&Bear, Massimo Dutti, Bershka, Stradivarius, Uterqüe), KappAhl, Kiabi, Koton, Lacoste, Lee, Lee Cooper, Les Benjamins, Levi's, Lindex, LittleBig, Mango, Marks&Spencer, Mavi Jeans, Moonday, Next, Otto Group, Pepe Jeans, Pierre Cardin, Polo Ass'n, Promod, PVH (Van Heussen, IZOD, Arrow, Warner's, Olga, True&Co., Geoffrey Beene, Calvin Clane, Tommy Hilfiger), Ralph Lauren, Seidensticker, Sisley, Timberland, Vakko, L.C. Waikiki, Wrangler.

---

*In this part of the study, we will give place to the policies of the brands and the answers we received to the questions we sent to the brands.*

## 3.1. Policies of Brands

---

The brands whose policies we examined bleach jeans and produce in Turkey. The information emerged prominently from the policies of the mentioned brands regarding the use of chemicals, focusing on two common features that are pivotal within the scope of the study, as follows:

Regardless of whether or not the brands give specific information towards to the use of PP, – determined by the programme named Zero Discharge of Hazardous Chemicals (ZDHC), which aims to provide the sustainability of the chemicals used in the leather, textile and shoe industry – we will look at if they accept the Manufacturing Restricted Substances List (MRSL). When the brands accept MRSL, they make a commitment to reduce and subsequently eliminate the use of hazardous chemicals over time. With the aim of achieving this, to control the production processes of all manufacturers taking place in the supply chain and understand whether they comply with the chemical usage limits, they become obliged to provide relevant training opportunities to the suppliers, in addition to having and inspecting laboratory analyses.

MRSL consists of three sections. The first section discusses chemicals: they're banned in some places, permitted with restrictions in others, known for their negative impacts, and not yet fully prohibited despite existing regulations aimed at restricting their usage.

In the second section, the chemicals that are candidates to enter the first section have been listed. Their common characteristic is that they are chemicals needing investigation to comprehend their adverse effects on humans and the environment. While not outright prohibited, taking precautions to limit their usage is advisable. In the third section, currently prohibited chemicals have been listed. The statements specified regarding PP taking place in the second section are as follows:

---

**Potassium permanganate** should never be used without appropriate engineering controls such as water curtains and local extraction, and the workers should always wear appropriate personal protective equipment. The suppliers are strongly recommended to evaluate laser, robotic spraying or safer chemical alternatives instead of spraying potassium permanganate manually.<sup>14</sup>



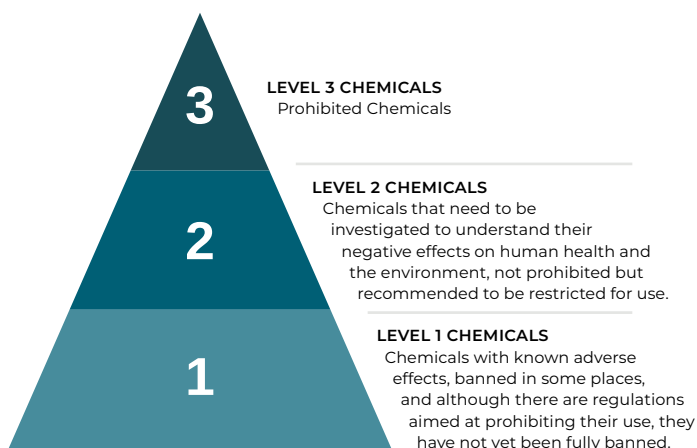
---

<sup>14</sup> Road Map to Zero. Chapter 2: ZDHC-MRSL Candidate List, 2E Potassium Permanganate. <https://mrsl-30.roadmaptozero.com/> Access Date: 16.11.2023

From this point of view, it can be concluded that the aim is to provide the full implementation of occupational health and safety practices and to encourage alternative uses of PP rather than eliminate the use of PP.

Among the brands we discussed in our research, those that are MRSL signatories are H&M, Mango, Inditex, Levi Strauss, Marks & Spencer, Benetton, Hugo Boss, Lacoste, PVH, Ralph Lauren, Diesel, and Next. The brands that have explicitly mentioned adherence to MRSL standards are Seidensticker, Lindex, Koton, and Otto Group. Guess stated that it plans to adopt MRSL by 2026, while Mavi expressed its intention to comply with MRSL standards by 2030.<sup>15</sup> On the other hand, Koton has stated its aim to ensure that the chemicals used by its suppliers comply with MRSL criteria “in the coming years”<sup>16</sup>. As seen here, the uncertain statements used by the brand regarding its aims and objectives make it difficult to follow the progress of the brand on the subject of sustainability. We also see a similar uncertainty in the statement of Colin’s: “We are using environmentally friendly chemicals in our products and monitoring the chemicals used by our suppliers with prohibited chemical lists”<sup>17</sup>. **The question of which “environmentally friendly” chemicals and which prohibited chemical lists are mentioned in this statement remains unanswered.**

## MRSL consist of 3 Chemical Types



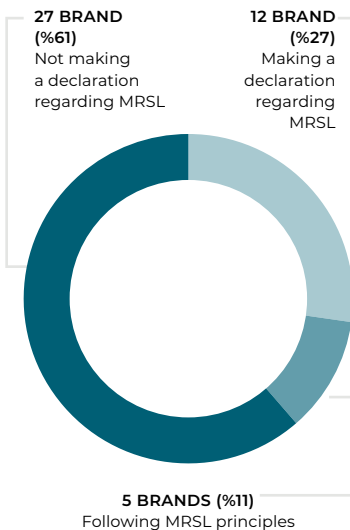
Brands and MRSL Compliance (2023 Sustainability)	
H&M	Signatory to MRSL
Mango	Signatory to MRSL
Inditex	Signatory to MRSL
Levi Strauss	Signatory to MRSL
Marks&Spencer	Signatory to MRSL
Hugo Boss	Signatory to MRSL
Lacoste	Signatory to MRSL
PVH	Signatory to MRSL
Ralph Lauren	Signatory to MRSL
Diesel	Signatory to MRSL
Next	Signatory to MRSL
Seidensticker	Indicates adherence to MRSL standards
Lindex	Indicates adherence to MRSL standards
Koton	Indicates adherence to MRSL standards
Otto Group	Indicates adherence to MRSL standards
Guess	Will adopt MRSL in 2026
Mavi	Aims to comply with MRSL standards by 2030
Colin's	Uncertain expression

<sup>15</sup> Mavi. Takip Hedefleri ve 2022 İlerlemesi. <https://www.mavi.com/sustainability/highlights.html> Access Date: 12.11.2023.

<sup>16</sup> Koton. Sürdürülebilirlik Raporu 2021. s. 65. <https://koton.mncdn.com/static/2021Surdurulebilirlikraporu.pdf> Access Date: 12.11.2023.

<sup>17</sup> Colin's. Sürdürülebilirlik. [https://www.colins.com.tr/t/Surdurulebilirlik?gad\\_source=1&gclid=Cj0KCQiA3uGqBhDdARIsAFeJ5r0iO8xcamd-YB-m5Z2eDVFCLRLW9HoSmcphnIx6Lh40--hwEn\\_luJQaAsj7EALw\\_wcB](https://www.colins.com.tr/t/Surdurulebilirlik?gad_source=1&gclid=Cj0KCQiA3uGqBhDdARIsAFeJ5r0iO8xcamd-YB-m5Z2eDVFCLRLW9HoSmcphnIx6Lh40--hwEn_luJQaAsj7EALw_wcB) Access Date: 12.11.2023.

## Brands & MRSL



No information has been encountered regarding the attitudes and plans of the remaining brands in terms of MRSL. In this respect, when we discuss the brand groups we researched, such as Inditex, Otto Group and PVH as a single brand, the result showed that 12 brands committed to comply with MRSL (27%), five brands followed MRSL principles (11%), and 27 brands did not make any declaration regarding MRSL (61%).

Although the brands generally do not share specific information regarding the use of PP, H&M, Diesel, Ralph Lauren, and Levi Strauss have statements on this subject. **H&M** states that it has implemented a PP use ban as of 1 January 2023,<sup>18</sup> **Diesel** expresses that bleached jeans turned to chemical alternatives that have less negative effects compared to PP during the washing process.<sup>19</sup> On the other hand, while **Ralph Lauren** stated that it is progressing in the way of removing the use of PP in jeans production gradually until 2025, it plans to expand this to non-jeans products as well.<sup>20</sup>

PP is not referred to in the report of **Levi Strauss's** named "Update on Sustainability Goals and Progress for 2022"<sup>21</sup> however, it is claimed that with the programme named "Screened Chemistry", Levi Strauss will remove the use of PP along with thousands of chemicals in its entire supply chain.<sup>22</sup> The programme tries to detect dangerous chemicals and identify safe alternatives to these chemicals. This programme, in which Levi Strauss, H&M, C&A and Nike are also collaborators, is in harmony with the MRSL-ZDHC programme.<sup>23</sup>

18 H&M Group. H&M Group Chemical Restrictions 2022- MRSL and RSL. s. 8-9. <https://hmgroup.com/wp-content/uploads/2022/01/hm-group-chemical-restrictions-textile-products-accessories-footwear-belts-and-bags-2022.pdf> Access Date: 12.11.2023.

19 Diesel. Preferred Fibres. [https://diesel-et01.s3.eu-west-1.amazonaws.com/VideoOutput/Content/DIESEL\\_PREFERRED\\_materials\\_and\\_treatments.pdf](https://diesel-et01.s3.eu-west-1.amazonaws.com/VideoOutput/Content/DIESEL_PREFERRED_materials_and_treatments.pdf) Access Date: 17.11.2023.

20 Ralph Lauren. 2023 Global Citizenship & Sustainability Report and ESG Supplement. s. 41. <https://corporate.ralphlauren.com/citizenship-protect-the-environment> Access Date: 17.11.2023.

21 <https://www.levistrauss.com/wp-content/uploads/2023/09/2022-LSCo.-Sustainability-Goals-Progress-Update.pdf>

22 McCasland, A. Levi Strauss & Co. to Eliminate Thousands of Chemical Formulations from Supply Chain as Part of Major Sustainability Breakthrough. <https://www.businesswire.com/news/home/20180227005685/en/Levi-Strauss-Co.-to-Eliminate-Thousands-of-Chemical-Formulations-from-Supply-Chain-as-Part-of-Major-Sustainability-Breakthrough> Access Date: 12.11. 2023.

23 Road Map to Zero. ZDHC Brands Converge Their Screened Chemistry Programmes. <https://www.roadmaptozero.com/post/zdhc-brands-converge-their-screened-chemistry-programmes-2> Access Date: 10.11. 2023.

Although it is not easy to obtain information regarding the brands for PP usage, it is relatively easy to obtain general information related to their chemical usage. Below are the sections that caught our attention among them.

In the report named “Clear to Wear”, dated 2023, **Inditex** had prepared a report by explaining the chemicals of which use was restricted and why they were limited,<sup>24</sup> and had stated that it aims to reduce the water consumption in the supply chain by 25% by 2025 on the sustainability page on its website.<sup>25</sup>

While **Mango** says it implements stringent standards that all suppliers are required to comply with regarding chemicals and product safety,<sup>26</sup> Ben Sherman had stated that it is obliged to comply with the strict norms on the subject of the pH, temperature, organic content and oxygen demand of wastewater according to the criteria of the “Global Organic Textile Standard” (Global Organic Trade Association)<sup>27</sup> and in this way, it guaranteed the life in the water.<sup>28</sup>

**Wrangler** had expressed the efforts it made to ensure production in accordance with the restricted substances list and explained that it aimed to eliminate 100% of unwanted chemicals from the production process by mid-2019.<sup>29</sup> Following this statement made in 2017, we did not come across a new statement regarding the extent to which this goal was achieved.

On the other hand, while **PVH** claims that it will zero harmful chemical waste in its production until 2025<sup>30</sup> it says that it applies MRSL throughout the supply chain.<sup>31</sup> **L.C. Waikiki** states that it works with the suppliers that make production in accordance with the “Ecology Harmonization” manual it published and that it takes into account specific standards of L.C. Waikiki as well as globally accepted regulations.<sup>32</sup>

However, this manual had not been shared on the site. **Here, the question of whether the supply chain refers only to directly contracted suppliers (Tier 1) is important. Or, are small suppliers (Tier 2) and suppliers below them (Tier 3) that have an agreement with the supplier included in this chain?**

24 Inditex. Clear to Wear. [https://www.inditex.com/itxcomweb/api/media/8bc3d9ce-fc0b-4b60-9735-33412c509d60/Inditex+Health+Product+Standard\\_Clear+to+Wear.pdf?t=1681213456460](https://www.inditex.com/itxcomweb/api/media/8bc3d9ce-fc0b-4b60-9735-33412c509d60/Inditex+Health+Product+Standard_Clear+to+Wear.pdf?t=1681213456460) Access Date: 27.10.2023.

25 Inditex. Sustainability. <https://www.inditex.com/itxcomweb/en/sustainability> Access Date: 27.10.2023.

26 Mango. Mango Sustainability Report 2022, s. 73. Buradan indirebilirsiz: <https://www.mangofashiongroup.com/en/our-sustainable-path> Access Date: 18.10.2023.

27 Global Organik Tekstil Standardı; Organik Ticaret Birliği (OTA: Organic Trade Association), Uluslararası Doğal Tekstil Endüstrisi Birliği (IVN: Internationaler Verband der Naturtextilwirtschaft), Toprak Derneği (The Soil Association) ve Japonya Organik Pamuk Birliği (JOCA: Japan Organic Cotton Association) tarafından kurulmuştur.

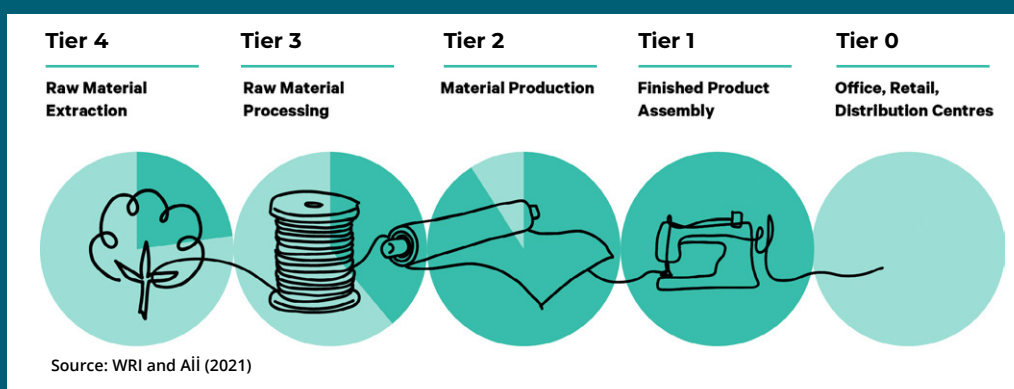
28 Global Organik Tekstil Standardı. Sustainable Development Goals, Madde: 14. [https://global-standard.org/images/resource-library/documents/GOTS-flyers/Why\\_GOTS\\_SDG\\_flyer\\_web\\_2020.pdf](https://global-standard.org/images/resource-library/documents/GOTS-flyers/Why_GOTS_SDG_flyer_web_2020.pdf) Access Date: 22.10.2023.

At this point, there is a benefit to giving brief information related to the textile industry: In addition to the store, which is the visible face of any product we buy, and the brand we choose to buy, there are various stages of the supply chain such as the factory where the product is produced, the raw material supplier, and the subcontractor.

## Supply Chain Steps and Sustainability Policy



For example, the product of the Spanish brand may have been produced in a factory in Tekirdağ, its raw materials may have been supplied from Edirne, and some production operations that could not be completed, such as ironing and packaging, may have been completed in a relatively small workshop in Tekirdağ. In this case, there are companies with which the brand has an agreement for the production of the same product. The brand had not made a direct agreement with these smaller companies, but these small companies also produced the brand's orders. In this respect, a brand's sustainability policy will be effective and realistic when it is not limited to the company; it has an agreement with cases and includes all stakeholders of the supply chain.



29 Wrangler. Safer Chemicals- Leading Chemical Management Tool Accelerates Product Safety. <https://www.wrangler.com/sustainability/industry/safer-chemicals.html> Access Date: 25.10.2023.

30 PVH. Corporate Responsibility Report 2022. <https://www.pvh.com/-/media/Files/pvh/responsibility/PVH-CR-Report-2022.pdf> Access Date: 29.10.2023.

31 PVH. Restricted Substance List. <https://www.pvh.com/-/media/Files/pvh/responsibility/PVH-Restricted-Substance-List.pdf> Access Date: 29.10.2023.

32 L.C. Waikiki. Ekoloji. <https://corporate.lcwaikiki.com/ekoloji> Access Date: 01.11.2023.



An example of a statement that takes this point into consideration can be seen in the sustainability report 2022 of **Hugo Boss**. The brand stipulates that all suppliers with whom it contracts directly are required to demand the requirements of MRSL and the functionality of the wastewater management system from its smaller suppliers and claims that it has made an agreement in a case where this condition is accepted.<sup>33</sup>

PP has not taken place in the restricted substances list of **Guess**, which does not have a statement regarding MRSL<sup>34</sup>, but wiser wash technology, which bleaches jeans by means of ozone gas produced from oxygen, is mentioned. We do not have information regarding the percentage of use of wiser wash technology, which is discussed under the heading of working with suppliers, or whether there is a date to increase its use to 100 percent.<sup>35</sup> Similarly, **Pepe Jeans** states that it used *wiser wash technology*, thus bleaching jeans with an environmentally friendly alternative that does not contain toxic chemicals and minimises water use.<sup>36</sup> Saying “jeans range” by Pepe Jeans while expressing that it uses this technology gives rise to the idea that wiser wash was not used in all jeans production. DeFacto also has a product series it named as “x wiser wash”.<sup>37</sup>

The brands that we did not come across any statements regarding their sustainability policy are **Esprit, Lee Cooper, Moonday, Pierre Cardin, Polo Ass’n, Les Benjamins, Debenhams, Clarks, Promod, LittleBig, Collezione and Vakko.**

**Daniel Hechter** has a sustainability page, but no information exists. Some brands had not provided information on chemical use on their sustainability pages, i.e. **Colin’s, Koton, and Sisley** brands.

33 Hugo Boss. Sustainability Report 2022- Today. Tomorrow. Always. s. 62. [https://group.hugoboss.com/fileadmin/media/pdf/sustainability/sustainability\\_reports\\_EN/HUGO\\_BOSS\\_Sustainability\\_Report\\_2022.pdf](https://group.hugoboss.com/fileadmin/media/pdf/sustainability/sustainability_reports_EN/HUGO_BOSS_Sustainability_Report_2022.pdf) Access Date: 29.10.2023.

34 Guess Global. List of Restricted Substances and Materials. <https://static1.squarespace.com/static/609c10ed49db5202181d673f/t/6153904ac45a19786009a96b/1632866379143/List+of+Restricted+Materials+%26+Substances+%282021%29.pdf> Access Date: 30.10.2023.

35 Guess. Chemical and Wastewater Management. [https://esgreport.guess.com/application/files/3216/8855/0547/GUESS\\_SR22-23\\_Environment\\_Water\\_stewardship\\_and\\_chemicals\\_management.pdf](https://esgreport.guess.com/application/files/3216/8855/0547/GUESS_SR22-23_Environment_Water_stewardship_and_chemicals_management.pdf) Access Date: 30.10.2023.

36 Pepe Jeans. What is Wiser Wash? [https://www.pepejeans.com/en\\_nl/pepefuture-denim.html](https://www.pepejeans.com/en_nl/pepefuture-denim.html) Access Date: 30.10.2023.

37 DeFacto. Wiser Wash Jean Pantolon Modelleri. <https://www.defacto.com.tr/wiser-wash-jean-pantolon> Access Date: 05.11.2023.

## 3.2. The Questions We Addressed to Brands and the Answers We Received

---

The questions we directed to the brands centre on obtaining information related to PP use. The questions are as follows:

**1.** Can you share your supply chain list in Turkey?

---

**2.** Is PP used in your production process?

---

**3.** If your answer is yes, do you have a limitation or zeroing plan for the usage?

---

**4.** If your answer is yes, what are the instructions you gave to the suppliers regarding PP use, storage, disposal and control, and how are the controls carried out?

---

**5.** What kind of controls are provided regarding whether the suppliers producing in Turkey comply with the waste treatment procedures, and how often are these controls carried out?

---

Only the **Inditex group**, which includes **Zara, Pull&Bear, Massimo Dutti, Bershka, Stradivarius, Uterqüe, Next** and **KappAhl** brands in its structure answered our questions.

<sup>38</sup> Inditex. Inditex Group Annual Report 2022. [https://static.inditex.com/annual\\_report\\_2022/pdf/Inditex-group-annual-report-2022.pdf](https://static.inditex.com/annual_report_2022/pdf/Inditex-group-annual-report-2022.pdf) s. 321. Access Date: 22.11.2023.

<sup>39</sup> Next. Our Suppliers. <https://www.nextplc.co.uk/corporate-responsibility/our-suppliers> Access Date: 22.11.2023.

<sup>40</sup> KappAhl. Suppliers. <https://www.kappahl.com/en-US/about-kappahl/sustainability/our-suppliers/suppliers/> Access Date: 22.11.2023.

<sup>41</sup> ZDHC. ZDHC Chemical Management System Technical Industry Guide. 2021. <https://downloads.roadmapzero.com/process/ZDHC-CMS-TIG> Access Date: 19.11.2023.

## According to these answers:

### 1. Can you share your supply chain list in Turkey?



The 2022 report of **Inditex** shows that there are **201** suppliers in Turkey. There are **907** sewing factories and **802** factories with which these suppliers have agreements.<sup>38</sup> Next has **119** manufacturers in Tier 1, **37** in Tier 2 and **51** in Tier 3.<sup>39</sup> Finally, **KappAhl** brand continues its production in Turkey with **16** production and **24** processing factories.<sup>40</sup>

### 2. Is PP used in your production process?



While **Inditex** and **Next** stated that they use PP, **KappAhl** had expressed that their suppliers mostly wash with the laser and ozone, but in some cases (for example, when global jeans orders are below 5%), PP was used.

### 3. If your answer is yes, do you have a limitation or zeroing plan for the usage?



While all three brands stated they were seeking chemical alternatives to PP, they did not provide a projected date for completely phasing out its use. While **KappAhl** stated that PP is harmful to human, animal and environmental health, **Inditex** had expressed that it was aware that PP will be able to create occupational risks if adequate safety measures are not taken. **Next** stated that PP would be completely removed by replacing PP with AW25 gradually.

### 4. If your answer is yes, what are the instructions you gave to the suppliers regarding PP use, storage, disposal and control, and how are the controls carried out?



While all three brands stated that they did not have any special applications for PP, they had given detailed information regarding their chemical usage. Accordingly, **Inditex's** **audit methods consist of preliminary assessments, social audits, and environmental audits. In the preliminary evaluation, the suitability of its supplier and production facility is checked.** During the social audit, periodic checks are made on the factory, and in the environmental audit, it is examined whether sufficient safety measures for the environment are taken. **KappAhl** stated that it monitored the suppliers on subjects such as protective equipment, chemical management and processing protocols, chemical inventory recording, and ventilation systems. On the other hand, **Next** said that the suppliers are required to follow the **ZDHC guide** regarding the safe use of the chemicals.

### 5. What kind of controls are provided regarding whether the suppliers producing in Turkey comply with the waste treatment procedures, and how often are these controls carried out?



**Inditex** stated that it regularly verifies compliance with “Green to Wear” standards with the environmental audits and that unannounced wastewater analyses were carried out by external auditors. **KappAhl** expressed that the transactions such as permit, license and test reports were examined for compliance with local and international standards, and the inspections were carried out annually. Finally, **Next** said that the suppliers are required to submit wastewater reports to them twice a year and that there are teams that control wastewater directly.

# 04 Ergene Basin as an Obvious Example of Environmental Pollution

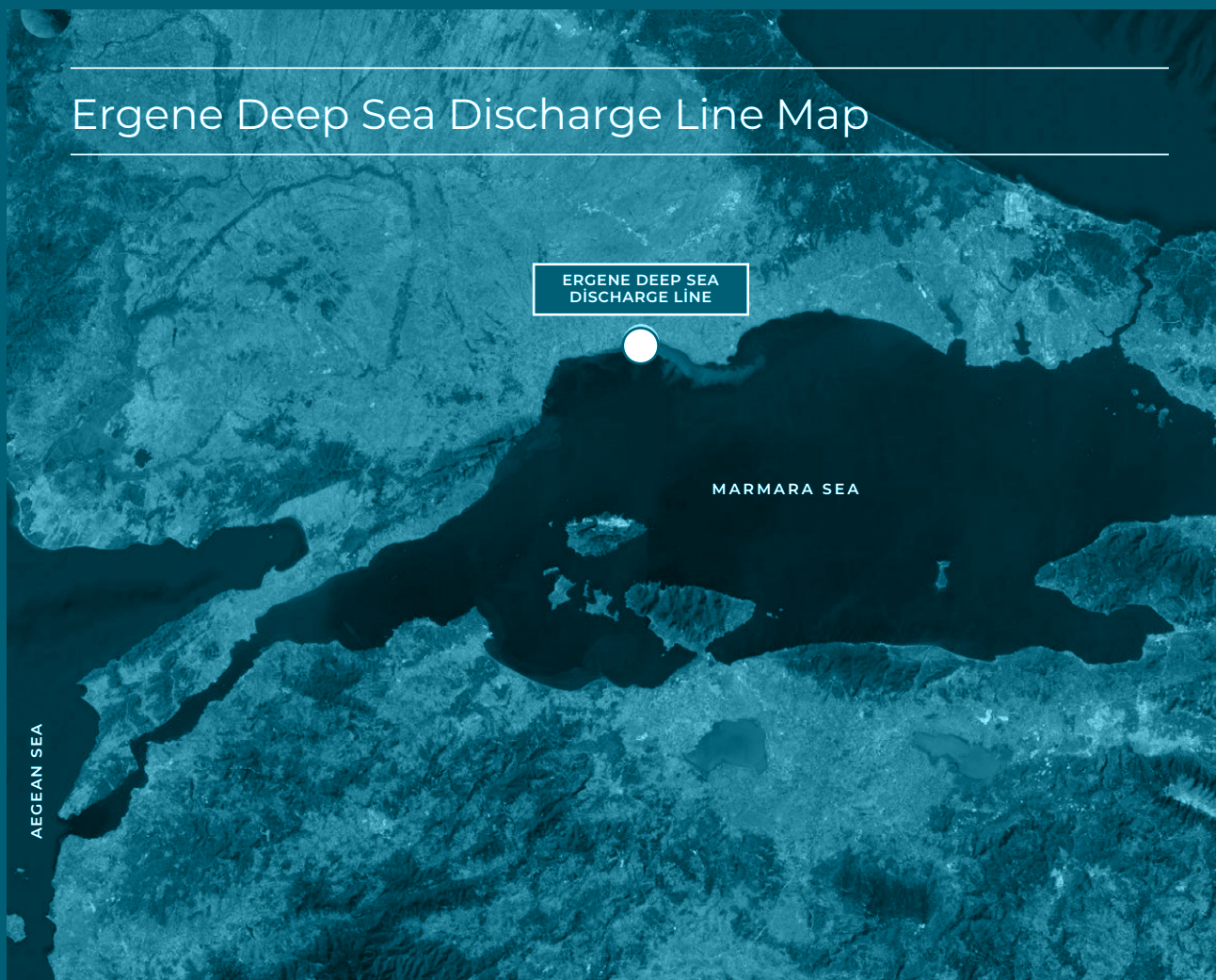
---

There are not many studies examining the harm of PP to human health. Moreover, it is difficult to conduct such a study that evaluates its environmental impact independently from other negative conditions that the production process created. However, particularly during bleaching, dyeing, printing, and washing processes, there is significant water and chemical usage, resulting in soil and water pollution as well as scarcity. These are environmental impacts that have serious consequences on people's health, biodiversity, ecosystems and land use.<sup>42</sup>

At this point, it becomes important to discuss the impact of the textile sector among the industrial activities gathered around the Ergene basin, and the effect of the activities such as bleaching and washing within the textile sector, and the use of PP in this regard, on the pollution of Ergene. In this context, we will first give place to the textile activities around Ergene by touching on the extent and reasons for pollution in the Ergene basin and the studies on preventing this pollution.

<sup>42</sup> de Verdier, M., Riddselius, C. & Chudy, S., 2010. Har modet modet? En rapport om nio klädföretags arbete med etik och miljö i leverantörsledsen, Fair Trade Center, Engwall ve M., 2008. Den blinda klädimporten. Miljöeffekter från produktionen av kläder som importerar till Sverige, SwedWatch, aktaran; Anna Larsson, Anna. Assessment methods for corporate responsibility on the fashion scene, A case study of Hennes & Mauritz, Lindex, KappAhl and MQ, 2011, s. 29.

## Ergene Deep Sea Discharge Line Map



## Waste Materials

**Industrial  
Waste**

**Chemical  
Waste**

**Household  
Waste**

## Effects

Visible effects

**Food insecurity** - HEALTH

**Water Pollution** - ENVIRONMENTAL

Potential effects

**Food insecurity** - HEALTH

**Diseases** - HEALTH

**Animal Deaths** - ENVIRONMENTAL

**Groundwater pollution** - ENVIRONMENTAL

Harita: Çevre Atlası - <https://cevreatlası.org/case/ergene-derin-deniz-desarj-hattı/#8.01/40.692/28.167>

## 4.1. Sectoral Activities and Pollution in Ergene Basin

The Ergene basin is struggling with environmental pollution, while the Ergene River is referred to as a dead river.

The industrialisation and population growth rate concentrated in Istanbul and Kocaeli had caused both industry and population to shift towards Thrace, which takes place near these two cities. Thrace is preferred due to factors such as its proximity to the industrial centres, ease of transportation and flat terrain, as well as the richness of the underground water resources of the region. The production process of the leather, paper, and chemical industries, especially textile, relies on intensive water usage.<sup>43</sup>

The Ergene basin, which meets a significant part of the wheat, sunflower and paddy needs of Turkey and is known for its fertile agricultural lands, has been struggling with water, soil and air pollution as a result of the sectoral activities, and Ergene River is mentioned

as a dead river.<sup>44</sup> The industrial facilities built on arable lands and the wastewater of the industrial facilities released into the clean water without being discharged can be assessed as the most fundamental factor in both the decline of agriculture and the current state of the river. Pollution of the water makes it difficult to use the Ergene basin for agricultural purposes because clean water is required for agriculture. In such a case, the productivity decreases, the product obtained becomes unhealthy, and the agricultural lands are ultimately opened to industrial use. Thus, the cause of the problem is reproduced, and over time, the pollution in the Ergene basin becomes visible to the eye without needing any examination.



Photo: Ministry of Agriculture and Forestry

<sup>43</sup> Özkan, E., Kubaş, A. "Ergene Havzasındaki Kirliliğin Sosyo Ekonomik Etkileri." 5. Dünya Su Forumu Bölgesel Hazırlık Süreci Türkiye Bölgesel Su Toplantıları: Havza Kirliliği Konferansı. İzmir, 2008, 15-21, s. 16.

<sup>44</sup> Kocaman, H., Akın, K.Y., Oğuzhan, A. "Trakya'da Ergene Nehri Kirliliğinin Tarım Üretimine Olan Etkisi: Edirne Örneği." Karadeniz Fen Bilimleri Dergisi. 2011(2:5), 89-104, s. 90.



In a study in which the responsible actor for the pollution in the basin was evaluated as Çerkezköy Organized Industrial Zone, six negative effects of the pollution were mentioned , including water, soil and groundwater pollution, food insecurity, diseases and habitat loss.<sup>45</sup> Despite the samples collected from Çorlu Stream, a tributary of the Ergene River, indicating a pollution level of the fourth class, lower than the pollution level indicated by data from the Uzunköprü Station located on the river, it confirms that the industrial zone is responsible for the pollution.<sup>46</sup> According to the information taken from the official website of Çerkezköy Organized Industrial Zone, 68 of the 297 companies operating in the region are in the field of textile and leather, and this corresponds to a proportional slice of approximately 23%.<sup>47</sup> The textile and leather industry ranks first in the sectoral distribution with a rate approaching 30% in the 2013 data of Trakya Development Agency.<sup>48</sup> When the data of the last five years are examined in terms of the number of workplaces employing registered and insured workers in the three cities, a visible expansion is seen.

**Çorlu Stream**  
Industrial Area

industrial waste  
→

**IV. Class Water**  
Highly polluted water

**The sector in the first place:**  
Textile and Leather Industry

**%23** **68**  
RATE COMPANIES

<sup>45</sup> Çevre Atlası. Ergene Havzası'nda Kirlilik. <https://cevreAtlasi.org/case/ergene-havzasinda-kirlilik/#15.73/41.260462/27.089878>  
Access Date: 21.11.2023.

<sup>46</sup> T.C. Çevre ve Orman Bakanlığı. Türkiye Çevre Atlası. Ankara, 2004, s. 73.

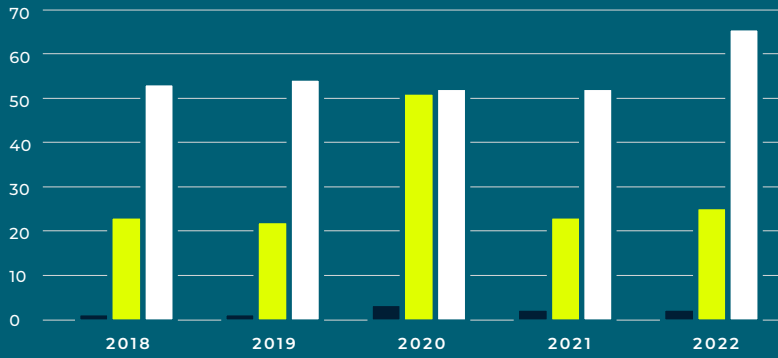
<sup>47</sup> Çerkezköy Organize Sanayi Bölgesi. Firmalarımız. <https://cosb.org.tr/firmalar/> Access Date: 21.11.2023

<sup>48</sup> Trakya Kalkınma Ajansı (2017). Trakya Bölge Planı: 2014-2023, s. 47.

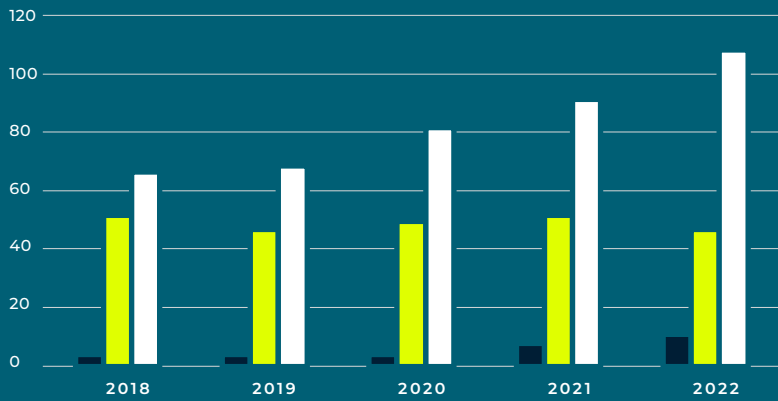
## LEATHER, TEXTILE, CLOTHING WORKPLACES EDİRNE, KIRKLARELİ, TEKİRDAĞ

■ LEATHER PRODUCTS MANUFACTURING    
 ■ TEXTILE PRODUCTS MANUFACTURING    
 ■ CLOTHING PRODUCTS MANUFACTURING

### WORKPLACE NUMBER - EDİRNE



### WORKPLACE NUMBER - KIRKLARELİ



### WORKPLACE NUMBER - TEKİRDAĞ

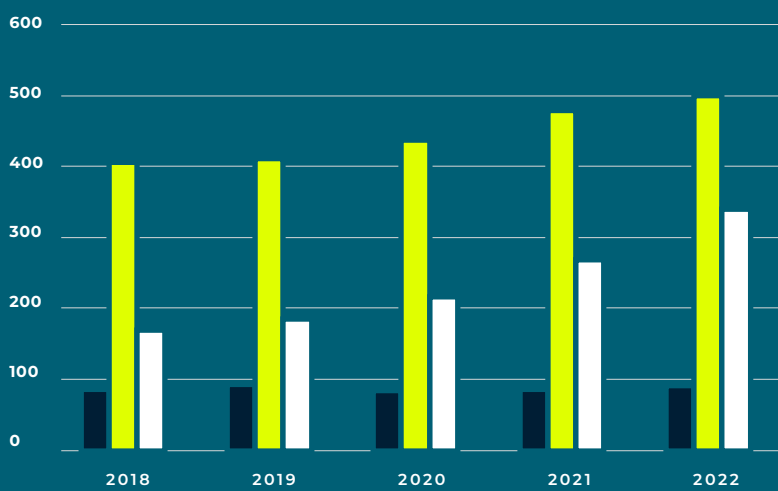


Photo: Google Maps / Corlu 1  
Organized Industrial Zone Directorate



## 4.2. Measures to Protect Ergene Basin: “Protection Action Plan”

The Ministry of Forestry and Water Affairs announced the Ergene Basin Protection Action Plan on 6 May 2011 in order to control the activities such as unplanned industrialisation in the basin, inadequate infrastructure, unconscious and uncontrolled use of the chemicals in agriculture and to prevent water pollution. In this regard, a series of actions had been planned, such as cleaning of stream beds, the establishment of wastewater treatment facilities, afforestation of the basin, monitoring and inspecting activities affecting water quality, taking industrialisation under control, managing infrastructure services “better”, obtaining favourable opinions on the subject of establishing new industrial areas, less water during industrial activities, encouraging the use of energy and pollutants, putting wastewater through advanced level treatment, installing measuring devices to the underground wells, and aiming to raise the Ergene River water to 2nd class water quality within 10 years.

In the news dated 28 November 2018, it was stated that 85% of the Action Plan had been completed, the project would end in 2019, and the water cleaned by the wastewater treatment facilities established within the scope of the project would be transferred to the Marmara Sea without being given to the Ergene basin.<sup>50</sup> According to the General Directorate of Water Management of the Ministry of Forestry and Water Affairs statement, dated 1 November 2022<sup>51</sup>, 15 actions and 19 sub-actions had been determined. Nine of the sub-actions have been completed, eight of them are ongoing, and two of them are continuously being monitored. As a result of the studies, it had been claimed that the goal of bringing the water quality of the Ergene River to the irrigation water quality was achieved.

<sup>49</sup> Resmî Gazete. Genelge (2013/6). <https://www.resmigazete.gov.tr/eskiler/2013/06/20130613-9.htm> Access Date: 21.11.2023.

<sup>50</sup> Tarım TV. “Ergene Havzası Eylem Planı” çalışmalarında sona gelindi. <https://www.tarimtv.gov.tr/tr/video-detay/ergene-havzasi-eylem-planı-calismalarında-sona-gelindi-10874> Access Date: 21.11.2023.

<sup>51</sup> T.C. Tarım ve Orman Bakanlığı Su Yönetimi Genel Müdürlüğü. Ergene Havza Koruma Eylem Planı Değerlendirme Toplantısı Gerçekleştirildi. <https://www.tarimorman.gov.tr/SYGM/Haber/1051/Ergene-Havza-Koruma-Eylem-Planı-Değerlendirme-Toplantısı-Gercekleştirildi> Access Date: 21.11.2023.



Photo: greenpeace.org

## 4.2.1 Current Status

Ergene River, which was found to be 3rd-degree polluted in the measurements made in May, had risen to the **4th-degree pollution level** again in the latest report prepared at the end of September.<sup>52</sup>

As a result of the Protection Action Plan, the wastewater coming from nearly two thousand factories passes

through a common treatment facility and is discharged 4.5 kilometres away from the Marmara Sea.<sup>53</sup> This situation is criticised by experts. It is considered a method that not only does not save the **Ergene River** but also endangers the Marmara Sea, and the mucilage problem that emerged in April 2021 is seen as a result of the destruction caused to the sea.

<sup>52</sup> TRT Haber. Ergene Nehri'nin Kirliliği En Üst Seviyede. <https://www.trthaber.com/foto-galeri/ergene-nehirinin-kirlilik-seviyesi-en-ust-seviyede/60495/sayfa-3.html> Access Date: 22.11.2023.

<sup>53</sup> Çevre Atlası. Ergene Derin Deniz Deşarj Hattı. [https://cevreatlasi.org/?\\_search=ergene#10/41.0102/27.7283](https://cevreatlasi.org/?_search=ergene#10/41.0102/27.7283) Access Date: 22.11.2023.



Photo: AFP 2023 / Yasin Akgül

# 05 Conclusion and Recommendations



When the wages and working conditions in the textile industry come into question, the rights of the workers vary depending on the brands according to which stage of production they are taking place. The rights of the brands decrease in case they are not in Tier 1, where the brands establish a one-to-one relationship and the working conditions become more difficult as intermediaries come between them and the brand (Tier 2, Tier 3...). This situation is important not only for the worker's health but also for the environmental health. In this respect, it is required to be emphasised that the responsibilities of the brands include the entire production circle, and the transparency of the brands is a part of sustainability.

We recommend that brands which produce lengthy reports on sustainability and claim to engage in sustainable practices, yet do not disclose their supply chain, should first be required to make their supply chain transparent.



Accessing brand information regarding PP, which is utilised to alter the colour of jeans in the textile industry, is challenging, and brands do not readily share this information. In such instances, whether brands adhere to MRSL serves as a guideline for obtaining information on this matter. MRSL considers PP to be a chemical that does not need to be completely prohibited since it is strongly recommended to take precautions during its use, and it is suggested to obtain information by conducting studies on it. Therefore, it is possible to demand that any brand accepting MRSL takes occupational health and safety measures for using PP and minimise the environmental damage.

**We must express our surprise at receiving responses from only three out of the 44 brands contacted during the study.** This situation becomes even more astonishing when considering that 27 of these brands made assertive statements regarding sustainability. On the other hand, Turkish brands (LittleBig, Collezione, Vakko, Colins, Koton) draw attention to the brands that do not provide information related to their sustainability policy. There are also brands that share the jeans series they manufactured using wiser wash technology, which is a healthier method during bleaching jeans; however, using this technology for only one series leaves question marks regarding how they carry out the entire production activity. At this point, we recommend that brands claiming sustainability should exhibit a greater willingness to address inquiries concerning their environmental policies. Additionally, **Turkish brands should demonstrate increased enthusiasm for sustainability initiatives and refrain from merely using sustainable production methods as a marketing strategy.**

**On the other hand, the Ergene basin had become known for its significant issues as a result of unplanned and intense industrialisation, disregarding the environment and, as a result, human health, based on the demands of the industry.** The measures towards protecting the Ergene basin did not protect the Ergene River, but they also added the burden of the Ergene River to the industrial burden of the Marmara Sea. **We find it imperative to discuss the textile industry's contribution to these environmental issues.**







# Temiz Giysi Kampanyası

Adil ve sürdürülebilir bir tekstil sektörü için



**Address:** Kemankeş Karamustafa Paşa Mahallesi,  
Halil Paşa Sokak, Ömer Abed Han, Kat 4 No:3-4  
Karaköy, 34425 Beyoğlu/İstanbul, Türkiye

**Phone:** +90 0212 251 99 79